

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/064115 A1

(51) International Patent Classification⁷: **E21B 47/10**

(21) International Application Number:
PCT/EP2004/013681

(22) International Filing Date: 1 December 2004 (01.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03293353.3 31 December 2003 (31.12.2003) EP

(71) Applicant (for FR only): **SERVICES PETROLIERS
SCHLUMBERGER** [FR/FR]; 42, rue Saint Dominique,
F-75007 Paris (FR).

(71) Applicant (for AT, AU, AZ, CO, DE, DK, ES, HR, ID, IE,
IT, KP, KR, KZ, MX, NO, NZ, PH, PL, RO, RU, SK, TM,

UA, ZA only): **SCHLUMBERGER TECHNOLOGY
B.V.** [NL/NL]; Parkstraat 83-89, NL-2514 JG The Hague
(NL).

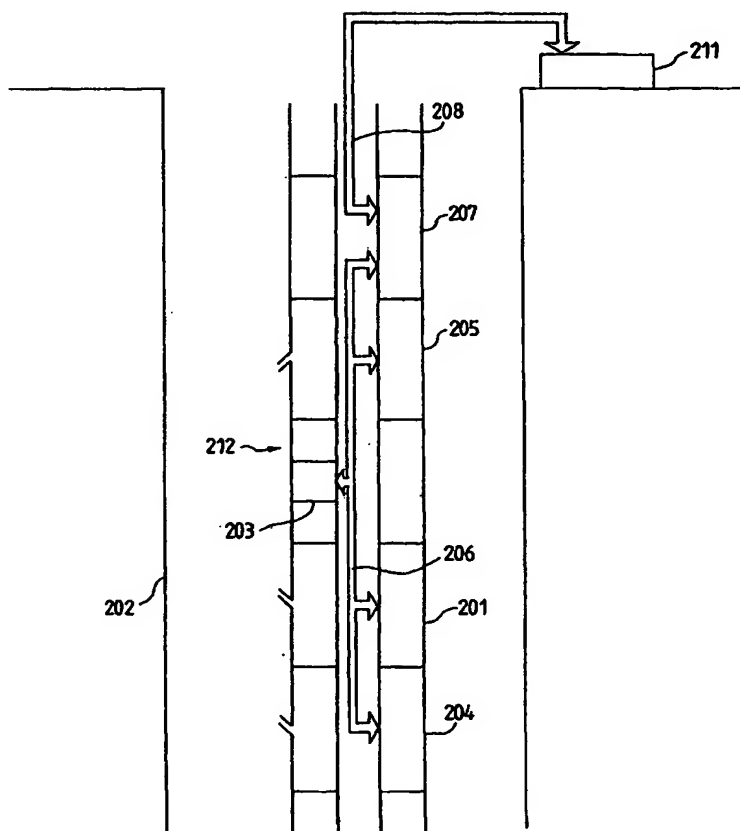
(71) Applicant (for all designated States except AE, AT, AU,
AZ, BR, CA, CN, CO, DE, DK, EG, ES, FR, HR, ID, IE,
IT, KP, KR, KZ, MX, NO, NZ, OM, PH, PL, RO, RU, SD,
SK, SY, TM, TR, TT, UA, US, ZA): **SCHLUMBERGER
HOLDINGS LIMITED**; P.O. Box 71, Craigmuir Cham-
bers, Road Town, Tortola, British Virgin Islands (VG).

(71) Applicant (for CA only): **SCHLUMBERGER CANADA
LIMITED** [CA/CA]; 525-3rd Avenue S.W., Calgary, Al-
berta T2P 0G4 (CA).

(71) Applicant (for CN only): **SCHLUMBERGER OVER-
SEAS S.A.** [PA/PA]; 8 Calle Aquilino de la Guardia,
Panama City, Republic of Panama (PA).

[Continued on next page]

(54) Title: **TRACER INJECTOR TOOL**



(57) Abstract: A tool system for monitoring a flow of liquid within a borehole. The tool system comprises a plurality of tools disposed on a longitudinal axis of the tool system. The plurality of tools comprises at least a first injector tool for ejecting in the borehole a tracer and a detector tool to detect the ejected tracer. The tool system further comprises a standard digital bus traversing at least a portion of each tool of the plurality of tools. The standard digital bus allows a communication between each tool of the plurality of tools.



- (71) **Applicant (for AE, OM, SD, SY, TR only): SCHLUMBERGER OILFIELD ASSISTANCE LIMITED**; Craigmuir Chambers, Road Town, Tortola, British Virgin Islands (VG).
- (71) **Applicant (for BR only): SCHLUMBERGER SURENCO S.A.** [PA/PA]; 8 Calle Aquilino de la Guardia, Panama City, Republic of Panama (PA).
- (71) **Applicant (for TT only): SCHLUMBERGER SERVICES LIMITED**; PO Box 438, Tortola, British Virgin Islands (VG).
- (71) **Applicant (for EG only): SCHLUMBERGER SEACO INC.** [PA/PA]; 8 Calle Aquilino de la Guardia, Panama City, Republic of Panama (PA).
- (71) **Applicant (for CG, CM, CZ, DZ, EC, GA, GN, GQ, GW, IN, LT, MA, NA, NE, PG, TD, TN, VN only): PRAD RESEARCH AND DEVELOPMENT NV** [NL/NL]; De Ruyterkade 62, Willemstad-Curacao (AN).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only): MOUGET, Pierre** [FR/FR]; 5, rue Anatole France, F-92310 Sèvres (FR). **SANDOZ, Jean-François** [FR/FR]; 19, Avenue Gambetta, F-75020 Paris (FR). **BOUCHER, Philippe** [FR/FR]; 65, DOM de la Croix de Pierre, F-28210 Nogent le Roi (FR).
- (74) **Agent: ETUDES & PRODUCTIONS SCHLUMBERGER**; 1, rue Henri Becquerel - BP 202, F-92142 Clamart Cedex (FR).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US; UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.